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(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS, N.V.** [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(71) Applicant (for AE only): **U.S. PHILIPS CORPORATION** [US/US]; 1251 Avenue of the Americas, New York,
New York 10020 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KLOOTWIJK,**

Johan [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL). **ROOZEBOOM, Fred** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

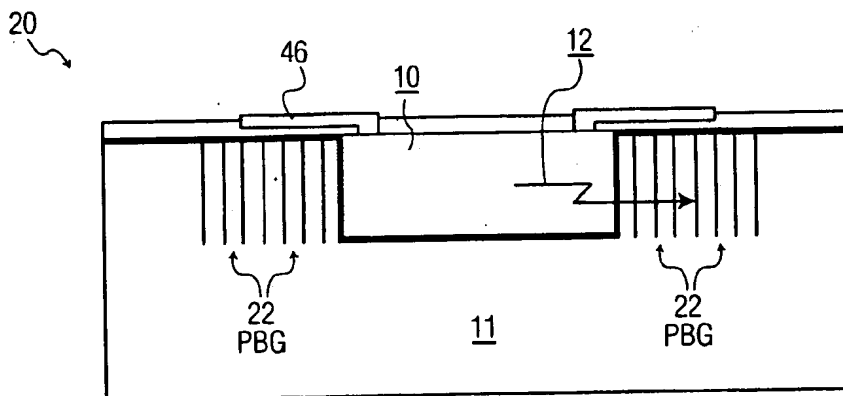
(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS N.V.**; c/o Shannon Lester, 1109 McKay Drive, M/S-41SJ, San Jose, CA 95131-1706 (US).

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(54) Title: SEAMLESSLY INTEGRATED OPTICAL WAVE GUIDE FOR LIGHT GENERATED BY A SEMICONDUCTOR LIGHT SOURCE



(57) Abstract: A seamlessly integrated hybrid optical network device. The device comprises: a semiconductor light source (10) mounted in a cavity in a silicon substrate (11), wherein the semiconductor light source (10) is fabricated from a non-silicon material; and a photonic bandgap (PBG) structure (22) seamlessly integrated with the semiconductor light source (10) to act as an optical wave guide for the photons emitted by the semiconductor light source (10), wherein the PBG structure (22) is etched directly in the silicon substrate.

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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT,

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- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

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